

COOP'S TECHNOLOGY DIGEST

-A Timely Report On The World Of Communications-

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ROBERT B. COOPER, P.O. BOX 330, MANGONUI, FAR NORTH (NEW ZEALAND)

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The TV World According to Japan Entertainment Television

Few would debate that the world of television broadcasting is undergoing a significant change nor that the rate of change is accelerating each year. Television broadcasting as we have learned to know and understand it within New Zealand (and Australia) has been of a particular, British modelled variety. It has been (and continues to be) repeatedly used as an "instrument of the state" in putting across subtle (and not so subtle) messages which the government of the day wishes to implant in the minds of the citizens. It has also turned into a measurable earner of revenues for government within New Zealand.

New Zealand and to a slightly lesser extent Australian television are basically inward looking tools. They depend upon outside programming sources but in the final analysis carry the banner of national identity. This shows up in many areas of daily programme content, decisions reached by people who are following policy created by nameless and faceless individuals working behind closed doors and out of the public spotlight. A report during May that one individual employed by TVNZ earns \$700,000 per year drew immediate condemnation from politicians and denials by TVNZ executives.

Increasingly the distances which have prevented "foreign" television services from making commercial inroads into New Zealand (and Australian) audiences are evaporating. To a very small degree, yet, cable television is responsible. To a larger extent the free flow of dozens of new programming sources available for the first time during the past six to twelve months via satellite will in the next twelve months become increasingly available to New Zealand homes through not only cable but local and regional UHF television services. One of these new programming sources, anxious to be seen in our country and willing to make deals to obtain air or cable space here, is Japan Entertainment Television (JET). There is a model here which anyone in the telecommunications world should understand because it may well turn out to be the wave of the future for New Zealand broadcasting.

Who They Are

Japan Entertainment Television has shareholders that include Sumitomo Corporation (Tokyo), Tokyo Broadcasting Systems (TBS), and Jupiter Programming Co, Ltd. The latter is a joint venture between Sumitomo and American cable giant TCI (also a shareholder in NZ Sky Networks). The firm's headquarters is in Singapore (2nd Floor, Asia Broadcast Centre, 20 Loyang Crescent, Singapore 508984; tel 65-546-4647 and fax 65-546-4648; contacts are Elaine Oh and the sales and marketing VP is Jim Hazama). The company was capitalised at US\$15,000,000.

JET initiated limited programme distribution March 31 using PAS-2 with their own (SA) PowerVu MCPC uplink (from Singapore; 3962Vt, Msym 13.740 and FEC 1/2. A limited test service had been launched within Taiwan in January using terrestrial distribution to that country's cable TV operators; 3 million homes (via 150 cable systems) reached are claimed in Taiwan at this time. The initial market thrust (phase one) includes Singapore, Thailand, the Philippines, Indonesia, Malaysia, Hong Kong, and Taiwan. New Zealand and Australia are included in the "phase two" development list, with China.

JET perceives its audience to be what they term, "The sizeable and rapidly growing middle class" throughout the Asian region.

How JET TV Plans To Reach Their Perceived Market

Country	Via CATV Systems	# Reported CATV Households	Resident Japanese Nationals	Annual Japanese tourists (1995)
Taiwan	150 systems	3,500,000	11,291	823,435
Philippines	Sky Cable et al	400,000	3,823	284,142
Hong Kong	Wharf Cable	300,000	18,528	1,159,589
Thailand	UTV, others	122,000	20,804	603,291
Singapore	Singapore Cable	100,000	21,296	731,679
Indonesia	Indovision (satellite)	170,000	9,967	301,375
Malaysia	MEASAT (satellite)	45,000	9,227	229,332
China	Hotel Distribution		13,675	865,177
New Zealand	Hotel Distribution		3,646	133,772
Australia	Hotel Distribution		21,457	744,376

Programming is distributed in NTSC and PAL with multiple audio tracks (English, Mandarin, Thai and Japanese; possible additions under review include Malay, Indonesian and Cantonese). The present uplink MCPC is capable of transmitting five separate programme channels simultaneously, allowing a mixture of standards (NTSC or PAL) and languages.

At the present time the programming is in six hour chunks which are repeated 3 additional times each day for a 24 hour operation. In June, the service will graduate to an 8 hour basic block with two repeats. Programming content is primarily sourced from TBS and other Japanese producers and they say it includes drama, variety shows, animation for children, documentaries, sport and music.

The target audiences (travellers, ex-pats, indigenous people in each target country) will be reached through cable TV and SMATV systems. The particular PAS-2 transponder chosen and its present footprint (power level coverage) does not lend itself to home dish (DTH) viewing; the signal is not strong enough to be received in most areas with DTH size antennas. Additionally, the digital system chosen from Scientific Atlanta requires receivers with US\$ price tags in excess of \$1,300; not the price level that attracts interest from normal DTH viewers. The service tested in a FTA format but has reverted to conditional access since 1 April.

At the inaugural ceremony (May 5th, Singapore), Mr. Ikuo Matsumoto told the audience:

"The main objective of JET TV is to provide non-Japanese viewers in Asia with a slice of Japanese life that can best be achieved through television. Through JET TV, Japanese expatriates can also keep in touch with Japan as we bring them closer to home, wherever they are in the region."

The 1995 NZ Census report states that 13,006 persons of Japanese origin were in this country at the time the census was taken. JET's own literature claims 3,646 Japanese are in permanent residence in New Zealand, another 21,457 in Australia.

Although the service is conditional access protected and available only through contracted outlets, JET is looking to advertising support for its primary revenue stream. Their initial rate card appears below. Programming is stripped across the board (same time, each weekday for same programme)

Time Slot	International-Designated Program	International-Designated 4 hr block	International-ROS	Regional Designated programme	Regional Designated 4 hr block	ROS
17.00-0100	US\$1,000	US\$700	US\$500	US\$500	US\$350	US\$250
01.00-09.00	\$800	\$560	\$400	\$400	\$280	\$200
09.00-17.00	\$500	\$350	\$250	\$250	\$175	\$125

Rates are for 15 second spots; various options including competitor block-out are also offered.

with 2 hour features and specials slotted into the weekend slots. JET hit the air with pre-sold advertising representing the following firms: Bridgestone Corporation, Casio Computer Co, Ltd., Fuji Photo Film Co., Ltd., Mitsubishi Motors Corporation, Nippon Telegraph and Telephone, SANYO Electric Trading Co., Ltd, Suzuki Motor Corporation and Toyota Motor Corporation.

The Hyundai Saga

When Scientific Atlanta announced their "DVB Compliant" MPEG-2 digital satellite receiver early in 1996, the perception was that this one receiver would allow cable and other users to tune-in any free to air (i.e., not conditional access) digital TV transmissions. That perception, enforced by numerous press releases from SA, turned out to be false.

There are, then, two levels of "DVB Compliant MPEG" (digital) TV available to cable, DTH and other users in the Pacific and Asia. For one format, you need a receiver manufactured by Scientific Atlanta; for the other there are a number of receiver suppliers including DMV/NTL, Grundig, Nokia, Panasat, Pace, Samsung and Skandia. For several months it has been believed that the only difference between the two "MPEG formats" could be "corrected" at the receiver with some creative software. The promise of one "all singing, all dancing" receiver has been the lure floating before the satellite industry since last December.

The problem is hardly unique to the Pacific and Asia. Europeans, now awash in dozens (and dozens) of MPEG bouquets, have also found the trail to the "all singing, all dancing" receiver uneven. Three months ago it appeared that one or more (software) versions of the Nokia (9500 S) Mediamaster was capable of being such a receiver; there was an immediate "rush" to obtain this unit. European software, some apparently quite capable, began to attack what they perceived was the problem that stopped the Mediamaster from being "all singing, all dancing." Web sites sprung up in support of this group effort, individual experts rose to the top, e-mail flowed (and flowed and flowed; example knowledgeable expert: jschulze@xs4all.nl). And a new phrase developed: The Dream Box. Everyone knew it should be all singing, all dancing. It just had to be!

Alas, to date it has not been and about all that has been accomplished is an increase in Internet traffic. Nokia (the origin firm) through all of this has stood to the side and made no contribution to the effort.

With the Nokia star on the wave (1) a new name than appeared; Hyundai. Now it happens that Hyundai, a Korean firm, owns a US firm called TV/Com. And the US firm is an acknowledged leader in MPEG proprietary systems. TV/Com, arguably, would be a hard number two on the tail of Scientific Atlanta MPEG expertise. Hyundai began their quest to search for distributors for a new MPEG digital receiver last December and in fact an announcement of their desire to locate distributors appeared in CTD (December 20, 1995). Early Hyundai units, prototypes, shipped to various Australian distributors for evaluation showed the same promise of conquering the PowerVu barrier as the Nokia. . No, they did not "do" PowerVu (properly) although they did after a fashion display PowerVu audio and video. The video, like the Nokia, had processing problems.

One Australian distributor, in fact the same distributor that handles our CTD and SatFACTS publications (Av-Comm Pty Ltd) was quick off the mark in contacting Hyundai and arranging what they thought was an "exclusive right" to distribute this receiver. But there were several design problems with the as-supplied model HSS-100 and Av-Comm set out to assist Hyundai in correcting those problems. Av-Comm thought it had the co-operation of Hyundai in this matter. It would turn out this was not the case.

Av-Comm identified that the receiver as supplied would not process NTSC format PowerVu signals properly. Hyundai showed little or no interest in revisiting the software to correct this problem and Av-Comm determined it could make this "software change" on its own. That would actually work out for Av-Comm, as we shall see. Additionally, Av-Comm reported to Hyundai that the receiver as supplied had a (UHF TV band) modulator output which was of no use in the Pacific. Normal PAL B transmission standards place the audio (sub) carrier 5.5 MHz above the vision carrier. To be usable on a TV receiver, the modulator built into the satellite receiver must adhere to the local format

standard. Alas, the Hyundai units were actually manufactured to PAL D standards which places the audio (sub) carrier 6.5 MHz above the vision. Net result - your Hyundai receiver produced fine video but no audio on Australian (New Zealand) TV sets. Av-Comm insisted this be corrected.

Between what Av-Comm characterises as "promises from Hyundai" and the software modifications the Australian firm was prepared to make on the receivers (as relates to their processing a PowerVu signal), Av-Comm was comfortable it had a winner. Early receiver orders in the A\$1600+ range were booked and a delivery date set (late April).

Meanwhile Hyundai was apparently busy selling the HSS-100 series receiver to other Australian firms; Skandia Electronics (Melbourne), Pacific Satellites (through their Hong Kong headquarters), Antares Electronics Pty Ltd. all were to announce they would be handling the receiver. Av-Comm was not pleased with the slippery manner that they perceived the Koreans to be handling the "exclusive" agreement reached but determined they would persevere none the less certain that their own version of the receiver which would properly receive PowerVu whether in NTSC or PAL would differentiate it from the competition.

The first shipments arrived at several distributor locations late in April and early May. The Av-Comm units had none of the changes Av-Comm says Hyundai agreed to make. This placed Av-Comm in a difficult position - without the co-operation of the factory, they were unable to fulfil their product specification promises made. Meanwhile other firms such as Antares were offering the original Korean version to the marketplace at a price that was about half of what Av-Comm had promoted for their special version.

On May 15th Av-Comm issued a release to the industry that said in part:

"Latest news from the (Hyundai) factory is that they will not honour the promise they made and will not be producing our version of the HSS-100C. They told (Av-Comm) on the telephone today that they are now selling to several companies 'much larger than Av-Comm' and these companies have not complained about the Chinese software for the Australian market. This means that every Hyundai HSS-100C sold into Australia will not work correctly."

In fact, the Hyundai group appears to have manufactured a run of 2,000 of the receiver carrying the HSS-100C model number. The "C" is significant - it tells us this receiver was purposefully created for China. From the Hyundai perspective, China represents a potential market of (they estimate) 1,000,000 receiver units in 12 months time. A "special version" created for the needs of those users who have both PAL and NTSC services available, "normal" MPEG and SA PowerVu, is simply not a priority. In all honesty, if it totalled 25,000 receiver units in the next 12 months, that would be a surprise.

So the Hyundai receiver that is being sold by a number of Australian distributors is not the "all singing, all dancing" unit which only 30 days ago it had been promised it would be. The only Australian distributor apparently willing to invest in modifying the software to make it such a receiver has now dropped the product because of an alleged failure of the factory to make good on the terms of their agreement. That the Hyundai might be software modified by someone else to at least handle the PowerVu NTSC and PAL feeds remains a distinct possibility. The incorrect (PAL D) modulator built into the receiver is actually a minor glitch since most users do not utilise the UHF TV modulator anyhow, preferring to connect the receiver's audio and video outputs directly to an external modulator or in the case of a DTH installation, through a pre-existing VCR (equipped with the proper modulator).

Through all of this Scientific Atlanta, which still believes it can produce a version of PowerVu which will (in reverse) process properly the non-PowerVu services, has been quietly beta-testing a new version of their own. Several PowerVu (model D9223) receiver owners have been advised by the factory to anticipate such software modifications to be available by mid-June or before. If there is an "all singing, all dancing" MPEG receiver at the end of this saga, the marketplace which has been repeatedly burned by claims is likely to be gun-shy. The winner may not be received with open arms.

1/ The saga does not end here; Nokia representatives are now claiming "June delivery" of a new software version receiver which they believe will properly process NTSC (and PAL) PowerVu for the first time. To date the Nokia "factory" has stayed out of this fray so the new claim of possible compatibility is heard with special interest.

SKY TO Networks: "Join Us On Satellite"

Candidate for the "worst kept New Zealand media secret of 1997":

Sky Network's open invitation to terrestrial broadcasters to join their digital transmission bouquet on Optus B1.

Sky management, still stunned by the abrupt Rupert Murdoch decision announced late in February to not pursue acquisition of a controlling interest in Sky, is moving ahead with their contingency plan to turn the network into the digital age innovator. On May 14, Sky announced success in locating NZ\$250,000,000 in new funding. The funds are from a bank syndicate including Royal Bank of Canada, ABN Amro Australia Limited, Banque Paribas, Toronto Dominion Australia Limited and Shanghai Banking Corporation Limited; the latter two designated as "co-arrangers" of the funding.

Sky would like to have their 1998-launch of digital be the primary delivery medium for all New Zealand television service. Ideally, they would offer a standard "basic" bouquet consisting of TV1, TV2, TV3, TV4, one or more music services (i.e., Max), ATVI, a national Maori service, the new Auckland public access channel, and north shore based Family Television Network. Preliminary discussions between Sky and the present terrestrial broadcasters began as far back as midwinter 1996.

To encourage NZ viewers to switch from the present 4+ channel terrestrial system to the 20+ channel digital satellite service, Sky apparently realises the importance of making the digital service a total package for all NZ television. This is a variation of the Murdoch inspired ASkyB and JSkyB plans and may in fact have originated at Sky when the Murdoch empire was negotiating to purchase control of the firm. The timing for this approach is near perfect.

Existing terrestrial broadcasters are facing hundreds of millions of dollars in terrestrial network conversion plans as the all-digital wave for (terrestrial) TV transmission washes around the globe. Can New Zealand ignore the switch to all-digital? Of course not. Can the NZ TV industry afford the transition? Only if they are individually willing to forego net-profits for up to 5 years to pay for the conversions.

The single largest cost is duplicating the existing analogue transmission system (starting at the studios, through the microwave, cable, fibre and off-air linking systems to the more than 1,100 TV transmitters now in operation). In the United States, terrestrial broadcasters are being told they should plan to switch off their analogue transmitters on December 31, 2006. The US believes that between the mid 1998 start-up of digital telecasting there, and 2006, all US homes will have acquired at least one digital TV receiver and be prepared to invest in digital to analogue "converters" for any old analogue sets still in service. A similar transition period to 2008 is announced for the UK.

To support a digital transmission system parallel to our existing analogue system, our telecasters must basically build entirely new networks. And then operate the existing analogue along with the new digital until someone says it is OK to switch off the analogue. There are hundreds of millions of dollars in this duplication nation-wide.

Enter the Sky plan. "Come with us to Optus B1 and we will include your existing (network) service within the digital bouquet" goes the offering. It is an enticing proposal because the Sky digital bouquet will allow terrestrial broadcasters to simply skip over the hundreds of millions of dollars required to build a parallel digital network for the transition period.

There are other shorter term advantages to the terrestrial broadcasters. A national network currently spends upwards of NZ\$5,000,000 per year for terrestrial microwave linking - reaching the national chain of transmitters with programming from the Auckland centres. At the end of many of their 'chains' the picture quality has been degraded significantly by being "repeated" so many times by a large number of relay stations. The digital satellite link will immediately offer a new, high picture quality way to interconnect locations such as the west coast of South Island and central north and south islands. From Auckland to the satellite to Queenstown - for example - is "one link," not the several dozen now employed. When the terrestrial services are comfortable with the reliability factor of the satellite, existing rental contracts with terrestrial microwave link suppliers (BCL, Telecom) can be phased out. At the end of the day - better quality signals to remote transmitters for a fraction of what it now costs.

For Sky it is a 'win-win' situation. If they include the terrestrial networks in their digital bouquets, the public will be quicker - far quicker - to invest in a satellite dish system. Various studies for NZOA over the years have suggested that at a minimum 10% of existing New Zealand homes receive the terrestrial network signals with imperfect pictures - that number could be as high as 25%. If satellite delivery promises to bring in digitally perfect images for the popular terrestrial services, Sky benefits because once the dish and IRD are in the home as a 'better way' to receive the national networks, Sky's marketing challenge is made that much easier. People can "sign on" and "sign off" Sky with an 800 telephone call - no more need to install special equipment "just for Sky." Sky's own sales efforts have always been cumbersome because of the need to arrange, schedule and complete a special equipment installation in order to fulfil a subscription agreement. If the equipment is already in place and working (for the NZ terrestrial channels), Sky can just about phase out their expensive installation department.

For smaller operators such as MAX TV or Family Television Network, the Sky "offer" is a tremendous opportunity. From local or semi-regional coverage to national coverage they suddenly become broadcasters with the same potential audiences as TV1 et al. The Family Television Network plan to provide a "national satellite feed" as an input to local UHF "affiliate stations" operated by local groups is given a major boost by becoming a part of the Sky service bouquet.

If there is a "gamble" in all of this, it is the distinct possibility that satellite coverage will work so well there would be no need to ever create a national digital terrestrial system. Those who now make a business of manufacturing terrestrial TV aerials and installing them will need to adapt to the changing times or face the same final chapter as blacksmiths and horseshoe suppliers.

TV3 FINE TUNES THE TV4 SYSTEM

TV4, doubtless the last terrestrial analogue network (and perhaps the last terrestrial network of any kind) to be activated for New Zealand is down to the fine tuning. The scheduled on-air dates vary as a function of location (not all of the new TV4 transmitters will be ready to launch at the same time); in Wellington, June 16th is the scheduled start of programme tests for the new TV4 outlets while June 29 is the "launch" date. Test patterns could be on the air at some locations from May 25th.

Since CTD last visited this project (October 31, p. 2) TV4 has completed engineering work to allow it to activate a number of translator locations in the Wellington market, has redefined their coverage for the Wharite (Palmerston North) transmission site, and added a new outlet to serve at least some portions of the Hastings/Napier market. Most of this portends a considerable upswing in television aerial and home receiving system business for technicians in the effected areas.

When TV3 announced TV4 and we reported on the channels to be used in October, it appeared the number of new home aerials required for the service would be minimal on a national scale. This is less true with the new announcements, and the further realisation that in some instances the TV4 effective radiated power (eirp) will be below the levels for TVs 1, 2 and 3 from the same transmission sites.

Wellington was always going to be difficult. Present telecasters serve this highly irregular terrain market with a combination of main transmitters on Kaukau and translator (repeater) transmitters spread throughout the metropolitan district. It takes a combination of 30+ main and relay transmitters to reach the full market and then often with less than perfect quality signals. The original announced TV4 plan was for a single transmitter, on channel 2. The update calls for a number of translators (13, 12 of these on UHF) to replace existing VHF channel 2 translators presently operated as relays for TV3. It is necessary that all channel 2 TV3 translators be moved to make room for the new Kaukau TV4 transmissions on channel 2. As this happens (already happening) many VHF translator viewers in the Wellington region will lose channel 3 service and to regain it will need to arrange for some assistance to install a new (UHF) aerial system. TV3 plans a substantial advertising campaign to bring these viewers back into the audience from late May onwards. Note the loss here will be to TV3 viewers, not necessarily potential TV4 viewers.

**Former Wellington Area Ch.
2 TV3 Translators moving...**

Whitby to channel 45V
Days Bay to channel 27H
Thorndon (Glenmore St) to
channel 45V
Karori West to channel 27V
Haitaitai to channel 47V
Seatoun (Breaker Bay) to
channel 47V
Houghton Bay to channel
31V
Birchville to channel 34H
Stokes Valley to channel
43V
Paremata to channel 45H
Wye St. to channel 4 (VHF)

Additionally, TV3's Towai
(ch. 42) translator is
relocating to Fitzherbert and
will provide replacement
coverage for the existing
Naenae and Wainuiomata
channel 2 translators.

And, to supplement TV3
coverage new translators are
going into Haywards (ch. 4H)
and Pinehaven (10H).

The Hawkes Bay region is newly added, the result of selecting an alternate transmitter site for a new channel 11 transmitter. TV1 (channel 6), TV2 (channel 8), TV3 (channel 10) all operate from Mount Erin. The new TV4 transmitter on channel 11 will be located at Mt. Threave. There are some perhaps serious implementation problems with this choice; a case of "this or nothing" for the already congested VHF airways in the Hawkes Bay region. Engineering standards established by the ITU suggest that where adjacent off-air channels must be used, the relative signal level difference between the two adjacent signals should not exceed 4 dB. Engineering planning suggests that at least in the "plains" region of Napier and Hastings, this design criteria should be met.

The practical problem here is that in locations where TV3 on channel 10 is more than 4 dB stronger than TV4 on channel 11, an audio "pattern" (interference) will bleed into TV4 on channel 11; from the channel 10 (TV3) audio signal. Many TV receivers are capable of properly separating adjacent channels provided they are received at the same approximate signal level. It is only when the signals are considerably different in level that the television receiver experiences difficulty.

The more practical problem will be how aerialists installing receiving systems for TV4 handle the selection of an aerial and positioning of that aerial between the TV1, 2, 3, and, TV4 antenna headings. If at any given location the TV3 service level is considerably higher than the 4 dB ITU recommendation, the aerialist may be able to correct the imbalance by repointing the consumer antenna to degrade slightly the TV3 signal while favouring the TV4 service. Motels/hotels with broadband aerial + amplifier systems will be especially tricky since the TV3 (channel 10) and TV4 (channel 11) signals will require significant "balancing" before the system amplifier receives the combined services. All of this suggests

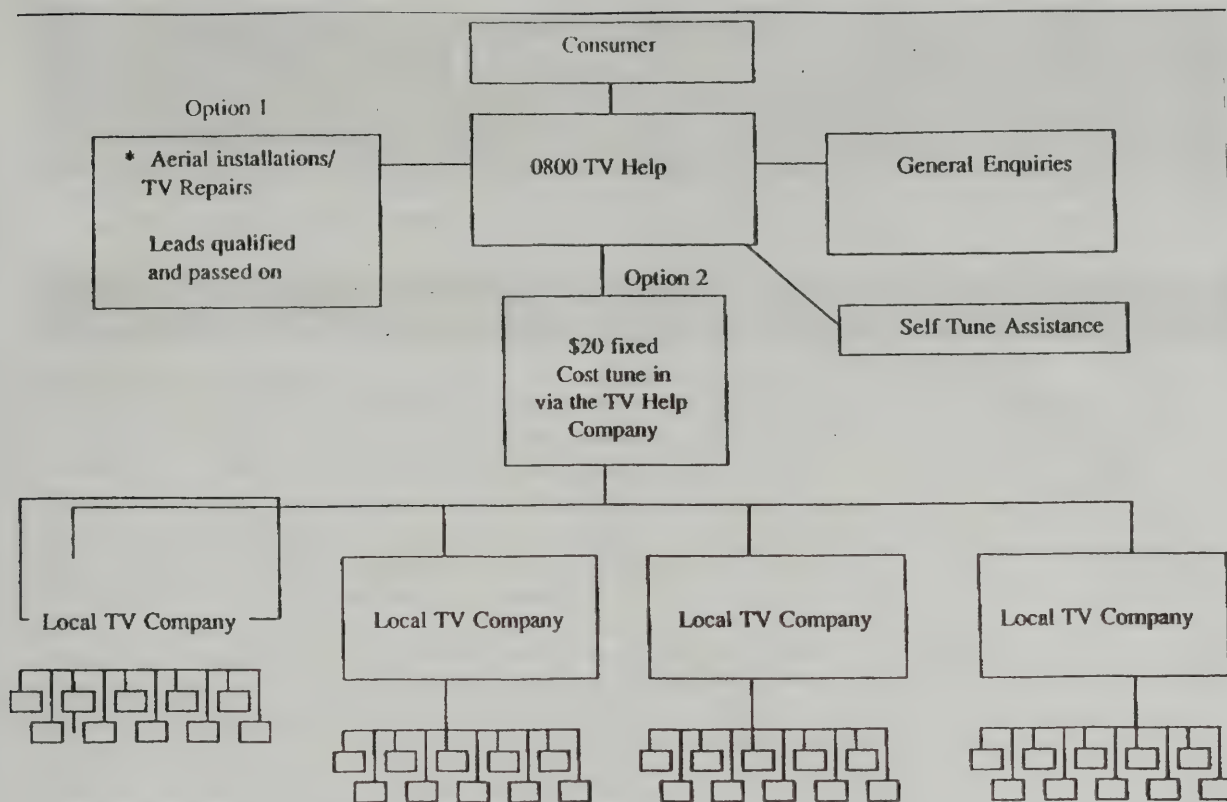
a considerable new level of to-be-learned skills for aerialists and more advanced technicians in markets such as Wellington and Hawkes Bay. TV4 warns that reception of their channel 11 service is not expected to be "usable" in the Havelock North area; a side affect of transmission antenna shielding and the unique transmission pattern to be employed on channel 11.

The Palmerston North channel 11 transmission (Wharite site) has been re-engineered to allow for the anticipated co-channel interference (CCI) originating from the Wellington Kaukau TV3 channel 11 transmitter. This basically means that as you approach the Levin region and go on towards Wellington, there will be some serious problems in receiving either the Wharite or Kaukau transmissions without some special antenna work. (1) The solution is to "delay" the unwanted signal through antenna stacking and phasing lines such that it cancels itself at the transmission line connection going down the coaxial cable to the TV receiver(s).

Another region which will have considerable difficulty is the upper Hutt Valley where translators for the various services will create adjacent channel situations for many viewers. In some instances a desired channel 4 signal will be adjacent to a stronger, unwanted channel 5 signal and to make the channel 4 signal "play" the installers will have to cleverly attenuate the channel 5 service.

The TV aerialist community has only recently discovered the lure of installing satellite dishes for Sky. Quickly it became apparent that the number of skilled practitioners available for the increased work load was (already) woefully short of the demand. The launching of TV4 will create new

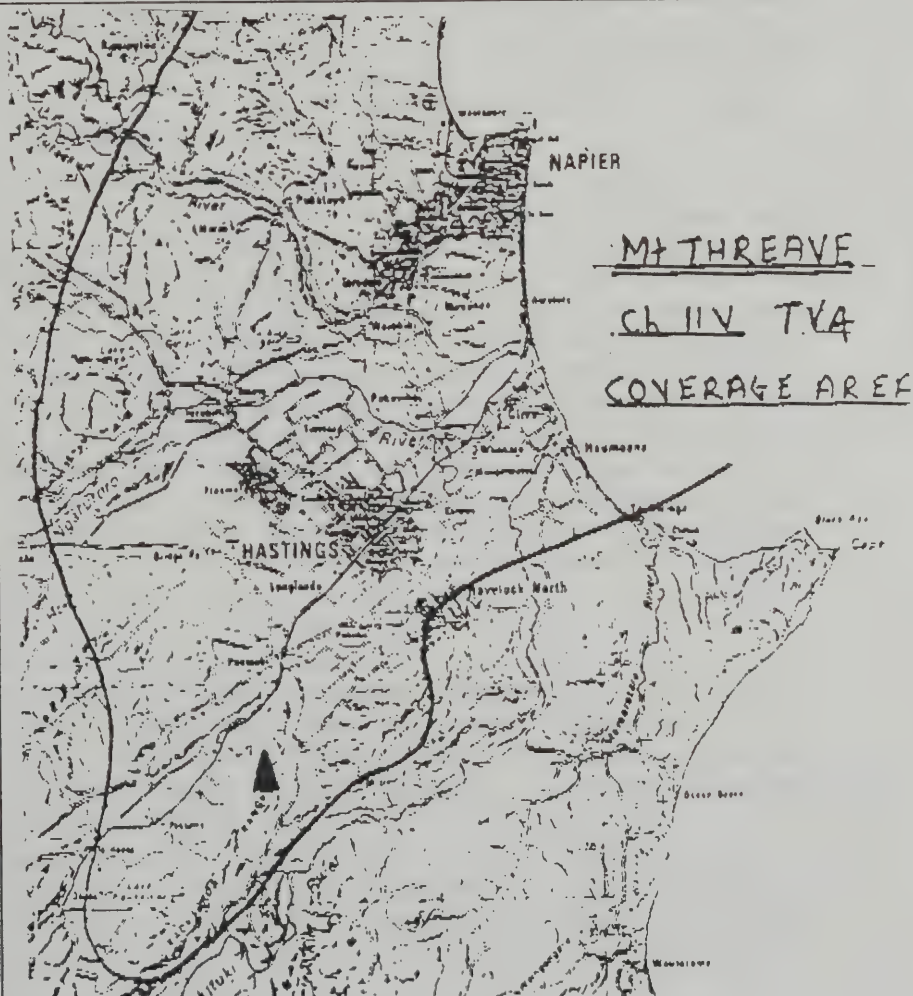
1/ This is not an impossible-to-solve problem. Our now out-of-print **Tech Bulletin # 9301** (Co-Channel and Antenna Phasing) and 9304 (Combining Cross Pole Services) provides considerable how-to guidance on solving this problem.



STRUCTURE of TV3 (4) "Tune-In" project to assist viewers in TV4 coverage areas (and dislocated viewers in TV3 districts) regain quality viewing of the new (and existing) channel.

demands for (hopefully skilled) personnel who are already in short supply. TV3, to get TV4 underway, is engaging students and other non-full-time employed to assist them with their "TV Help Company." An 800 call (0800 TV HELP) puts consumers in touch with a registered aerial installation firm, the ad-hoc "TV Help" personnel, or attempts to provide over the air/telephone assistance. TV aerialists "fed" leads from TV3 (4) are being asked to "kick back" \$5 of each job they do as a result of the sales leads with the explanation this money will go towards "additional advertising to promote the tune-in programme."

Squeezing in channel 11(v) TV4 coverage for portions of the Hawkes Bay region (right)
- Havelock North is nulled out.



TECHNOLOGY BYTES

...BITS and BYTES you may have missed in the rush to make a dollar ...

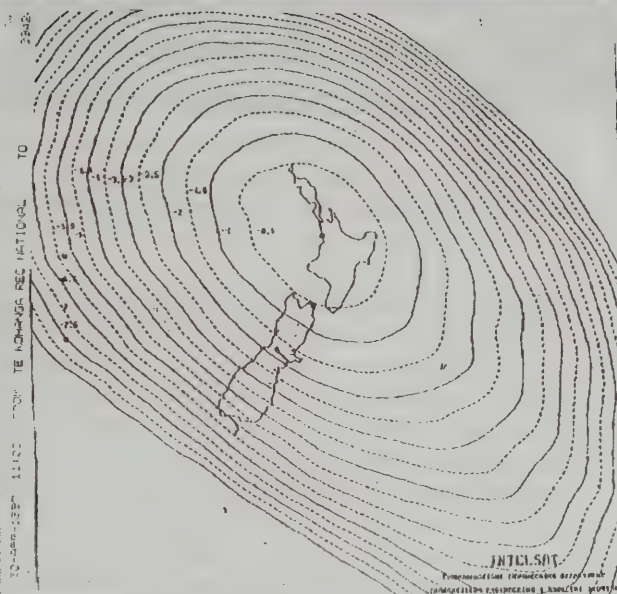
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Satellite TV & Radio

Project Amiorangi, Te Reo Maori language trial using Intelsat 1702 Ku-band satellite (177E), ultimately involved 16 Kohanga Reo sites installed from Invercargill north to Ahipara and Kaitiaki. Final test downlink frequency was 11.514 GHz (1764 IF) with daily 25 minute exploratory programme fed at 11AM NZT May 17 to 25th. Programme was mastered by Family Television Network (Warkworth/Snells Beach), tape transported to Lake Cowichan Intelsat uplink site (Canada). Dish sizes were typically 1.2m for analogue format transmission, sites reported C/NRs in region of 12+ dB. Only minor technical glitches; Canadian uplink unable to standards convert PAL format master tape or playback Beta master, and, last minute switch from 6.5 to 6.6 audio subcarrier. Future of Maori (Te Kohanga Reo National Trust) self-help project to be decided - desire is to equip approximately 780 kohanga reo sites with downlink dishes. Project funding remains significant challenge with annual budget well into 7 figures. One technical surprise - that Intelsat has ability to place 50.5 dBw footprint on Ku into New Zealand - a level only marginally below that of Optus service provided by Sky Network.

New Zealand would-be satellite direct to home service provider Impact TV (CTD 9703, p. 8) began testing coverage through a Filipino satellite located at 161E May 14th; typically 3PM to 8PM NZT through May 22nd. The firm has been working well below the surface to achieve a level of funding required to put a planned 10 programme channel MPEG digital TV service on the air for approximately 2 years. The test, consisting of colour bars over printed with a NZ fax number for "signal reports" (64-9-473-1757), was first reported on ex-Rimsat 41 on 1465LHC by New Zealand and Australian observers. CTD was advised by Filipino authorities who own the satellite (recently renamed Agila 1) "The tests are for a period of 5 to 7 days, no programming will be shown." However, On May 17th and again May 21st video service, downlinked from Palapa C1, was injected into the testing sequence. "To satisfy the requirements of the rights holder," a representative of Impact told CTD, "we must encrypt the service even though this is only an abbreviated testing sequence." The encryption planned format was to "invert" the video (i.e., to properly receive, switch the video sense at the receiver). In fact, tests on May 21 included a relay of TVSN (Shopping Channel) and no inversion was included. The uplink was provided by Subic Bay's SBSI. Individuals sending reports to the Auckland region fax number were advised, variously, "There will be two Filipino programming channels operating on this transponder (1/2 transponder format)," and, "(Impact) plans to begin telecasting from a (Russian?) satellite to be located at 170E." CTD was unable to verify either of these statements with Impact directly; a spokesman told us, "This is all a part of our business plan. We have been after this transponder for years and now the opportunity to lease it has come up." This transponder, formerly utilised by RAJ-TV when the satellite was located at 130E, is potentially the most powerful C-band in the world (75 watts, global footprint). There are no further plans to utilise this transponder nor to provide regular programming service "at this time."

WorldNet, operated under the auspices of the Voice of America, made a surprise appearance on AsiaSat 2, horizontal polarisation, 1265IF May 15 and began regular programming service at 12 noon NZT on May 19th. WorldNet is a free to air TV service which has been available through Intelsat (180E) for nearly a decade. The Intelsat coverage has never been of high quality and for the past four years the satellite has increasingly been



Ku-band coverage 1702 at 177E over NZ on
'Spot 1': 50.7 dBw centre, 46.3 Invercargill

more and more difficult to utilise because of an inclined orbit condition. The AsiaSat 2 service, while low to the horizon for all NZ users, was 3 dB stronger than any other AsiaSat 2 signal initially, dropping to "more normal levels" by the 19th. The PAL format feed is not totally clean; initial broadcasts have an annoying "heterodyne beat" pattern that drifts through the video image and the PAL signal shows signs of having been linked through one-too-many satellites and standards converted one-too-many times before being sent out via As2. And the analogue signal, while well above threshold on a 3m dish, still exhibits slightly below threshold "sparklies" indicating a satellite hop prior to the AsiaSat 2 feed is itself not getting a clean off satellite signal. Still, it is a far better signal than has recently been available through Intelsat and one immediate effect; New Zealand UHF stations previously making use of FTA programming for rebroadcast now have a considerably more stable signal to work with. WorldNet plans to cease the Intelsat feed within 60 days, a loss of coverage for the service in the central and eastern Pacific but an immediate gain in potential viewers throughout all of Asia (previously largely unserved).

Taiwanese based SPACE TV Systems Ltd. is actively courting "distributors" in Australia. The service is testing now, plans to go into commercial operation June 1st using a pair of Ku spot beams from Intelsat at 177E (1702). One beam serves eastern Australia with potential dish sizes of 1.2m, the second covers most of SE Asia. Programming in the MPEG-2 conditional access package now or will include: (1) Taiwan Television, (2) China Television, (3) Chinese Television System, (4) Formosa TV - from June 12, (5) Formosa News Channel, (6) NHK Asia (with Chinese subtitling from July 1), (7) KBS (Korean service from July 1) and (8) Asia Television (Cantonese channel from Hong Kong, July 1). In Australia they are offering "distributorships" on the following terms: A royalty fee of US\$100,000 is to be paid (to SPACE Systems) against a two year contract period. If the distributor sells 1,000 home DTH systems (and signs each up as a subscriber to SPACE programming) within two years (or less), the US\$100,000 is returned to the distributor. If not, a prorated share is retained by SPACE Systems against the "subsidised price" of the DTH systems. About which: SPACE is selling the (Taiwan built) IRD to distributors at US\$450 each, a price it claims is "subsidised." The distributor apparently will supply its own 1.2m dish, LNB (or LNBf), cable and other hardware. SPACE Systems is suggesting a retail (consumer) price of US\$1,000 per installed system (plus applicable local tax). Monthly subscription fees are apparently in the region of US\$20 for the initial 8 channels, four of which are terrestrial TV channels from Taiwan. The distributor does not participate in the subscription revenue stream. Distributors interested will receive an evaluation IRD during June, individual orders for units must be in quantities of 50 minimum per order. Additional details from James Tzeng, Executive VP at tel ++886-2999-2939 and fax ++886-2999-2989.

Add new Orion C + Ku satellite announced for 139E (a questionable location given the present use of 138E by ApStar and 140E by the Russians). They claim 10 C-band transponders (which could explain the location, selecting C-band frequencies which will not conflict with either ApStar or the Russians) and 33 Ku. Projected launch and operational date: Last quarter 1998 with coverage that pointedly mentions Australia (NZ is also assumed). Eight of the Ku band transponders are pre-sold to Korean telecommunications provider DACOM.

PT Pasifik Satelit Nusantara (PSN), Indonesia, has signed an agreement with Space Systems/Loral for a "Super Power" C + "X-band" satellite to be launched by Russian Proton during the first half of 1999. The scheduled orbit location is not firm, 118E and 134E are mentioned. The Multi-Media Satellite will operate at regular plus expanded C-band. Seven shaped C-band beams and one global beam will allow users to utilise C-band receive dishes as small as 50 cm, making the system the strongest C-band service in the world. Australia is mentioned in the list of coverage areas and this may include New Zealand as well.

Vietnam broadcaster VTV has leased C-band transponder capacity on Measat-1.

Bloomberg International has a change in policy with respect to cable and SMATV systems using their FTA PowerVu service feed on PAS-2. Agreements are being signed with local/regional (UHF) broadcasters in NZ as well as cable TV at this time. Contact Nick Samitz at tel 61-2-9717-8658.

Hyundai HSS-100C units, with software version that does not do PowerVu services properly, is in stock at several Australian outlets including Skandia Pty Ltd (tel 61-3-9819-2466), Antares Electronics Pty Ltd (tel 61-7-3205-7574). Price range from both sources is between A\$800 and 900.

Daewoo, Korean firm that has been attempting to acquire assets of Thomson Multimedia (French national firm), was only new major company displaying working MPEG-2 DVB satellite receivers at UK Cable & Satellite Show during April. Daewoo has plans to market their products under their own name, are also going to be source for European popular PALCOM brand entry into digital IRD world as well. First products shown at

ASIA SAT-2

Programming Begins at 0000 UTC

May 19, 1997

For schedule information:

gopher://gopher.voa.gov/t1/worldnet-sked

For further information:

WORLDNET@USIA.GOV

-THE NOKIA CONUNDRUM-

In the fast changing world of "DVB Compliant" satellite receivers, a week can be a terribly long time. SatFACTS Monthly for May 15th reported on the promise and confusion surrounding the Hyundai HSS-100 series receivers and as we report on page 4 here, that confusion only became more complicated after the 15th.

Enter now the latest software version of the Nokia Mediamaster (9500 S base model) IRD which has arrived in the Pacific after SatFACTS for May was sent to the printer. There are two versions out there, both seem to be significantly better than any previous Nokia units. A "software version 2.00" which appears to be the original German "d-box" in disguise is reported in stock now at OPAC Pty Ltd (Sydney at tel 61-2-9584-1233). OPAC's Jacob Keness claims the unit functions with on screen English text (menu instructions), comes out of the box ready to load 21 different MPEG-2 services from AsiaSat 2 and can be user loaded with additional services from Palapa C2 (Megavision), Optus B3 (Optusvision), and PAS-2 (all free to air [non conditional access]) PowerVu services. What Keness does not advise is whether his software version continues to be plagued with the NTSC "lock up" effect. This has been a continuing problem with all versions of the Nokia released to date - when processing NTSC signals the receiver displays a slightly small image (a function of the 525 line NTSC versus 625 line PAL) and every 20 seconds the image freezes for a millisecond. On some Nokia units the freeze-up lasts for 0.5 seconds and the audio stops as well. Dealer pricing for this version is under A\$900.

Comes now yet another version, supplied to sister publication SatFACTS Monthly directly by the Nokia factory in Sweden. This model is believed to be unlike any previously received unit in the Pacific or Asia. All instructions are (in menu) English, the receiver immediately loads all AsiaSat 2 MPEG services (including many that are conditional access and therefore, although loaded, cannot be viewed: STAR TV on 3700 vertical, for example). This particular version contains a white stick-on label (underside) which reads:

**"Boot 2.00 UnS
No. 2.233"**

SatFACTS proceeded to load 78 different MPEG-2 programme channels from a number of satellites and found only one known service available in New Zealand which failed to load (Myanmar TV on As2; a service we have never been able to load into any receiver tested). Amongst those exhibiting "perfect" reception were PAS-2 service from AAR-ART (Arabic Radio Television) and RAI International (a feed that includes the much missed Italian soccer matches which RAI eliminates from their AsiaSat 2 feed). Naturally it does not receive conditional access services. NTSC? Well, it has the same 20 second freeze up problem of all other Nokia units received to date.

Both versions (via OPAC and the unit supplied to SatFACTS) clearly have corrected earlier "overwrite" problems (the ability to load multiple bouquets to memory). The retail importance of this is that a consumer wishing to have instant remote control access to the 12+ Chinese services from AsiaSat 2 plus the three Chinese services from PAS-2 (all are free to air) could - once the receiver is 'loaded' - simply zip through the menu. As for the NTSC and PowerVu "challenge" - there are as many "promised solutions" as sources for information. One that may hold out more hope than the others originates at the sales desk of Nokia (Sweden) where they are now suggesting a new version built around the Mediamaster 8200 S (note change in first digit) "to be available late in June" will be equipped with two separate menus. One of these menus, they say, will process NTSC and/or PowerVu NTSC services while the other will process MPEG DVB (PAL) services.

As always, hope springs eternal.

limited Msym rates (15-30) and as such will not handle Chinese SCPC transmission; a newer version with SCPC and NTSC (including PowerVu) was described at UK show.

Letter from Rupert: News Corp head Rupert Murdoch in April 25th letter to Echostar CEO Charles Ergen advised that unless Echostar agrees to use News Digital Systems encryption system, announced investment in Echostar could be in jeopardy. And then it was; off. Echostar launched its North American DBS service around French sourced Nagra encryption card system while all of the Murdoch DBS services world-wide use his own NDS encryption routine (also used in Pacific by Galaxy in Australia, Sky Network in NZ). Ergen's initial

-Protecting DVD Releases From Unauthorised Copying-

Widespread digital video disc copying by pirates is a particular worry facing rights owners. VHS copies have always been cumbersome and noise riddled. A copy of a rental store "copy" gets the copier one or at most a couple of additional generations before the noise and synchronisation problems inherent with analogue tape copies stops further successful duplicating. A digital video disc is as close to a master as most users are ever likely to experience and making tapes from disc "masters" or more worrisome yet, making new DVDs from another DVD, is a serious concern. A number of encryption methods have been offered, some will allow a single tape copy to be made from a disc, others will prevent even this. All techniques developed and shown to date are defeatable by a serious pirate equipped with the appropriate hardware and software.

Macrovision, a leader in analogue encryption techniques designed to thwart copying of VHS tapes, has a new technique they believe will shut down DVD duplications before they begin. The concept is to allow the copying to take place but to equip DVD players with a software routine that recognises the copy is not an original disc and to reject playback on that basis.

A DVD player produces an analogue output - necessary to allow a common TV set to display the content of the disc. It is this analogue output which can be copied by an outboard VHS tape machine under the correct circumstances. But to turn the analogue output back into an encoded MPEG signal for re-recording on a new piracy digital video disc requires a reversal of the digital to analogue process.

Macrovision in a recent world-wide patent application proposes to "scramble" the MPEG-2 data stream on the disc. The data stream can be decoded only if encryption keys recorded on the original disc are intact. The data stream is compressed as a part of the routine DVD recording technique. Macrovision believes their control of the compression technique plus the burial within the data stream of decoding keys will prevent consumer affordable recording technology to evolve.

The Macrovision CSS system takes advantage of the DVD player's laser guided servo control system to authenticate original and copied discs. They believe that by rotating the recording pattern, creating something they call "wobble" of the data track on the disc, their system can utilise this "wobble" as a test of authenticity. The wobble is deliberately added to original discs, and the wobble pattern is set by the software routine. A disc copied without the wobble would be judged a pirate copy and the player would reject it from play. The wobble appears only on the disc, is not transmitted through the player to the output and cannot be replicated by anyone attempting to make their own DVD copies.

response was, *"I thought all of the issues - including this one - were resolved when we signed the deal"* (with Murdoch). Apparently not. Announced plan had been merger of Echostar's growing inventory of Ku band satellites with those under construction and planned for 1998/1999 launch by Murdoch + MCI consortium. This was to provide as many as 500 DBS direct to home TV channel options plus Internet and other data services through single provider. For now - like the Sky Network deal in New Zealand - all is off. When Echostar finally decided Murdoch's no meant no, they went to US District Court in Denver (Colorado) seeking ruling that one element of Murdoch-Echostar merger should be enforced: Echostar claims News Corp had agreed to advance it US\$200m as "loan." Echostar's current version satellites, perhaps by coincidence, cost approximately US\$200 each to build and launch - and the next launch is due before year end.

Data via satellites. When Echostar launches its newest version higher power Ku satellites in February (1998) to 61.5W (no good for us) and 148W (possibly useful to NZ and Australia), the dish size will shrink dramatically (to) 8" (20.3 cm) - 13" (33 cm). Echostar's next generation of TV satellites (September 1998) will bring a similar reduction in size and offer combined (Internet) data plus TV service to dishes previously considered too small to be effective.

JVC will supply 3 IRD models for Echostar direct TV system in North America, one of which will include interface to digital format home recorder. JVC adds "brand recognition" to satellite IRDs being offered for sale for the Echostar system and the digital format home recorder will allow all digital processing of received signals for storage or later review; a first in the DSS (direct satellite system) world.

Scientific-Atlanta reported net profit of US\$16.5m for quarter ending March 28th; up from \$11.5m in same quarter year ago on revenue rise from \$271.9 to \$301.7m. Gains were registered in increases in domestic terrestrial products (+16%) and international sales (+32%).

USSB, domestic DSS satellite programmer in US, had revenue of US\$99.2m in quarter ending March 31, up \$42.2m from year ago. However, net loss was US\$22.5m versus \$21.5m year ago. Firm said increase in losses were mostly caused by "subsidies of DSS receiving system hardware" through program that allows systems to be sold below actual cost in expectation that new DSS system owners will eventually spend enough watching their systems to offset the initial subsidy losses.

BSkyB has announced winners in their selection process for purchase of a digital IRD unit to support the planned 200+ channel programme service launch late this year. The initial order is for US\$500m in equipment sourced from Amstrad, Hyundai, Pace and Panasonic. Calling the service "British Interactive Broadcasting" (BIB), they will subsidise the consumer cost of the new IRD units by selling them in the marketplace for (list price) US\$300 each; approximately \$200 below what the anticipated market cost of the units will be.

Digital TV & Radio

Not all US TV broadcasters, now facing a projected 2006 "analogue drop dead" conversion date to digital, are willing to make the switch. In particular, some public broadcasters (PBS stations which are non-commercial and dependent upon grants and state legislature funding) are asking how they can avoid the digital switch, either indefinitely or beyond the announced 2006 date. The US government answer - *"To retain your licence to broadcast, you have no choice but to switch to digital."*

"**Digital TV firestorm**" is sweeping North America following government decision and announcement that all analogue TV would cease by 2006. Biggest confusion is at retail TV set sales level where consumers are increasingly questioning why they would want to purchase an analogue only TV receiver knowing that it will have a relatively short life, and that analogue plus digital receivers are scheduled to be available in 1998. Retailists now fear 1997 could turn out to be exceptionally slow year for new TV sales; manufacturers are rushing to modify analogue only receivers with rear chassis input to accommodate a set top digital to analogue decoder at a future date. Complicating the North American problem - early stories appearing in the media told consumers the first digital TV receivers would cost between (US)\$1,000 and \$2,000 - what the reports got wrong is the receivers are projected to cost between \$1,000 and \$2,000 "more than a comparable size screen analogue only receiver." Threat of digital TV may have been cause for first 90 day slowdown in sales with 3.3% less than comparable period in 1996; worse yet, 60% drop from week prior to digital announcement. CE industry in US is responding by creating nation-wide education program. In 1996, 21.9% of all US households purchased one or more new TV receivers (8% purchased new PC).

Mexico and Canada, living under the US television umbrella, are individually completing their own analogue to digital conversion planning. US channel allocations within reach of border areas were considered when US established new channel allocations for digital; Mexico and Canada already have significant engineering done as a result. Mexico plans to announce implementation of digital conversion and hard dates by September, Canada very soon.

Consumer Electronics

Even before DVD (digital video discs) have attained nation-wide launch in US, the next generation product is already making serious waves at the manufacturing level. Re-writable (CD-RW) technology is down to negotiating engineering standards for the system that promises to forever bury the VHS tape based recording system(s). There are presently two technology levels under serious design review. Write Once DVD-R is a system that allows consumers/users to take a "blank" CD, inserting it into a CD recorder and making permanent, non-eraseable copy or original of video and audio input data. The standard now suggested for this version is a 5" disc with 3.95 Gb capacity. A mini-version, 3" disc, would be recordable on both sides with 1.23 Gb per side. Multiple-write versions, like VHS tape today, would allow the user to record, erase and record again. This is a tougher technology to implement at the consumer level of hardware. Side issues include ensuring that any DVD-R (or DVD-RW) disc will be compatible with the now-available DVD players and CD-ROM drives of personal computers. Target market date at Philips, one of the firms working on the new technology, is 2000.

Competitive plan offered by chip creator Intel is aimed at digital to digital recording (digital source to digital recorder). Descrambled signals available on IEEE 1394 bus are point where most movie rights owners fear unauthorised duplicating will "tap off" service for dubbing or retransmission via such pipelines as Internet. Intel proposes cryptographic signal scrambling that will follow through the industry agreed IEEE 1394 bus, and then to add a new layer of protection, a "handshake" between the source and the next piece of equipment to "verify that they are authorised to communicate." Intel further proposes that because their new technology is patentable, all users of the technology would have legal rights in court to sue "black box" manufacturers or sellers on patent-infringement grounds.

RCA 36" "Compaq-PC Theatre" package has been released in six test markets in USA at US\$4,999 list price. Television and PC combination looks and operates like standard high end television product but TV tuning and other playback/record options are "hidden" away inside of Compaq PC portion. With supplied remote control, users toggle between PC and TV seamlessly. PC programming is accessed without having to back track

through Windows 95 software allowing instant switch from remote to e-mail and other frequently used PC-family features. External A/V sources including DVD, VCR or satellite receiver are accommodated through pair of S-video and trio of composite video inputs. Picture in picture allows two TV (channel) images, or TV inside of PC display but not reverse. One interesting innovation: The "Theatre" system converts NTSC interlaced signals to progressive scan VGA computer resolution, effectively doubling the display lines and creating the illusion of improved image resolution.

To accommodate DVD players, satellite receivers capable of supplying demultiplexed MPEG-2 outputs to external devices, TV manufacturers are adding additional input jacks to at least the high end TV receivers. Manufacturers expect this trend to escalate in 1998 model year, allowing TV receiver manufacturers and retailers to claim their analogue receivers are "digital ready." What this means is that when set top digital to analogue converters become available towards useful life end of analogue sets purchased during 1998-2000 period, owner will be able to procure set top digital decoder and connect directly to TV receiver through special "digital input" jack. Much of this is in reaction to sudden slow down in analogue TV set sales in North America following public announcements of digital conversion. Generally, these new jacks are called "YUV inputs."

IBM has announced intention of adding DVD ROM to consumer level PCs by late June. Toshiba sourced drive will appear in some Aptiva series PCs. This is apparently the first PC maker to include DVD capability into a home computer; many already offer older MPEG 1.5 or MPEG 1 video playback through software managed CD ROM drives.

DVD launch in US has been expanded significantly as consumer retail giant Blockbuster has expanded the product line and software from 16 to 100 stores (nation-wide). Blockbuster operates varying levels of outlets, those with full line video equipment (including Laserdisc format software) have been selected as first to receive new DVD technology. Responding to the announcement, software providers are also stepping up the number of movie and other titles available on DVD. Image Entertainment is expanding to include Thomson owned software. Warner Home Video has ten new titles including 10, Batman Forever, Chariots of Fire, Outbreak, Dumb and Dumber, Zeus & Roxanne, and a Director's Cut version of The Wild Bunch. Sony, with a June 3rd first-sale of their DVD players in US, is being backed by Columbia TriStar music specials and films. DVD (discs) are running at an average of 10,000 units per week since the product launch - all of this in just 7 launch markets and fewer than 100 total authorised retail outlets.

WebTV Network has signed hardware procurement deal with British Pace Micro in anticipation of 1998 launch of service in UK. Actual Internet delivery system tests will begin in November or December this year, to be followed by full retail rollout in first quarter of 1998. In North America, WebTV users with their own PCs have been forced to maintain two separate ISP (Internet Service Provider) accounts and dual e-mail addresses. Under revision to be initiated shortly, a single ISP and single e-mail address will be required. Microsoft recently acquired WebTV for a reported US\$425m but industry reports say WebTV function will not appear in new Memphis Operating System (replacement and upgrade from Windows 95).

WebTV competitors Philips and Sony have entered a price war at the retail level with list prices dropping 24% in two weeks time in North America. Currently the "street price" for the box that turns any TV into an Internet Browser is around US\$250. Retail giant Blockbuster is test marketing a three day rental of a WebTV box at US\$19.95 which includes free, unlimited use of Internet for the rental period. Hilton Hotels is also conducting test at San Jose (California) facility providing WebTV boxes free to guests in 350 rooms. Hotel entertainment supplier On Command has developed a competitive package that marries WebTV decoders and Internet service with in-hotel information services which it is testing in five San Francisco area hotels. Amazing announcement of the month involving WebTV: Although the service has attracted significant trade press (including here), as of April 1 they had but 56,000 subscribers throughout USA.

Web Pal, \$329 street price competitor to WebTV package, is scheduled to arrive in USA during June. Taiwan built unit features software allowing users to select their own ISP, resolution they claim is superior to WebTV, and built-in support for external printers.

US\$199 price tag on Hewlett-Packard DeskJet 670C series PC colour printers is likely to reshape the home printer market.

Repairing valued CDs? Glendale, Arizona firm (Fix-A-Disc) charges US\$5.99 (5" music CD) to take soiled or damaged older CDs and bring them back to life. Customers receive mail-in pack at Blockbuster and other locations, enclosing payment and damaged disc. If disc can be rejuvenated, firm typically grinds "a few thousandths of an inch" off of grooves and polishes back to original smoothness. Service claims same disc can be refurbished multiple times, integrity of data stored there is not compromised. Cracked discs, deep scratches are not repairable. Is there a business opportunity here for South Pacific?

Hitachi "Movie Pass" Ultravision 4-head VCR hi-fi model has sensor that detects movie previews and promotional material appearing ahead of feature movie on rental tapes. User can direct VCR to automatically "speed through" the non-feature material using remote with one touch button control, then slow down and play

at normal speed when feature begins. Life has sped up so much we are no longer left with sufficient time to go to the bathroom!

On again / off again. DirecTV's launch of DirecPC in North America officially started last August but has been slow to catch on and slower to be implemented at retail level. Hughes now says they are not certain a major market push will begin before Microsoft "Memphis" operating system is ready in 1998. DirecPC has option of pushing ahead with Windows 95 as operating system base and providing update kits for users, or simply waiting until the newer version is available. DirecPC has been offering data only services; Memphis has built-in capability of processing and manipulating MPEG video (and audio) which will turn the DirecPC satellite consumer package into a combination data plus television processing system. Ahead: 2000 switch to new Loral Spaceway transmissions with delivery data speeds up to 24 Mbps.

Big bucks. Web Sites for US firms average set-up costs of (US)\$238,000 and \$218,000 annually to maintain the site. However, only 35% believe "Web presence is important business tool," 55% use sites to "sell products and services," while 54% spend "less than (US)\$100,000 annually for Internet advertising."

VGA equipped front projection (large screen) display systems have suffered 25% drop in selling prices in last 12 months; further 25% slide predicted this year. Problem is SVGA - latest technology which produces brighter, sharper (higher definition) projection images. SVGA is expected to take 80% share of market in 1997, with entry level pricing in region of US\$7,000. Older VGA technology entry level pricing has dropped to US\$3,000 and will come down further. Most manufacturers believe VGA projectors will be gone from marketplace within 12 to 18 months.

Chinese design and manufactured home PCs are entering the export market; 100,000 units at average US\$1,048 have been ordered by Source-One Enterprises. Chinese manufacturer sells there under Legend Computer Group name, headquarters in Beijing but controlled from Hong Kong listed Legend Holdings.

C-Phone, currently capable of 12 video frames per second (NTSC) when the telephone connection is of very high quality, has re-entered US marketplace at US\$349 per unit. Frame rate has bottom end of 2 frames per second when telephone lines are noisy.

Turn around at Philips, attributed in part to divestiture of Grundig. First quarter net profits were US\$242m on world-wide sales of US\$8.49B, a 3% rise from year prior. Leading growth markets for firm includes Pacific (and Asia) while Europe and North America are described as "flat" in sales growth.

Sony, which is celebrating 50th anniversary, reports electronic sales in year just ended were up 24.3% from year prior to US\$35.4B. Most significant growth area - colour TV sets and monitors which rose 30.4% to US\$8.4B in sales.

World-wide recorded music industry hit US\$38.9B in 1996, a 5.5% rise over year prior. Fastest growth regions: Pacific Rim (other than Japan) with Australia particularly robust and Latin American countries (with Brazil the fast growing market). World shipments in 1996 are reported as 2.1 billion CDs, 1.4 billion cassettes, 20 million LPs, 500 million singles.

CD replicators have met in London at request of EMI to plan strategy which they hope will force patent holders Sony and Philips to lower royalty fee schedule. Problem seems to be where replication plants are located. The group claims plants in China (33), Ireland, Switzerland and Israel pay no royalty at all - partially because of cross-licensing agreements maintained by Philips with some major manufacturers, partly because Philips in apparent error "*never got around to registering their patents in these countries.*" Group claims that of 374 CD plants world-wide, 211 pay no royalties at all. Those who do pay are naturally not pleased with this situation as it impacts their bottom line profit structure.

Bang and Olufsen, Danish manufacturer of mostly high end consumer electronics, plans return to manufacturing its own television receivers and VCRs "within two years." Firm, which has company owned and operated retail outlets in New Zealand, has been sourcing video products from Mitsubishi since 1993, previously they sourced these products from Hitachi.

Cable/Fibre/MDS/Pay TV

Saturn Communications, Wellington based cable TV system builder owned by United International Holdings (USA), is taking Sky Network Ltd. to the Copyright Tribunal claiming Sky's cable TV affiliate offer is designed to quash competition, not increase Sky reach. Sky originally circulated contract agreements to potential cable TV affiliates last July and August, withdrew those contract offers after obtaining outside legal advice the contracts were at variance with the New Zealand 1994 Copyright Law (see CTD, 95-3-16, p. 2). Sky then modified the offering and reissued the contracts in November; three cable firms have signed the contracts and are currently Sky affiliates (Gisborne which imports Sky Movies and Orange via a system constructed microwave link, and takes Sky Sport from satellite; Greymouth which tapes Movies and Orange in Christchurch for week delayed play, plus Sky Sport via satellite; Far North Cable TV Ltd. [Doubtless Bay] which carries Sky Sport from the satellite feed). Contracts have also been offered to Taupo Cablevision (Inc.) and a prospective cable operator in Nelson. Saturn says it has conducted numerous meetings with Sky "for more than one year" hopeful of obtaining

an affiliate agreement which "made economic sense" to the firm. The original (July/August, 1996) contracts offered typically cited a 5 year contract term; the new contracts are for one year. Saturn is asking the Tribunal to rule on a range of issues including its jurisdictional powers to intercede in the terms of the Sky offer. Saturn believes the cable TV affiliate subscriber rates from Sky to be excessively high and will argue the rates have been set high to discourage larger systems such as they own and that operated by Telecom's First Media from becoming affiliates. Saturn claims their under construction Wellington (and suburbs) system now passes more than 12,000 homes although apparently only a portion of the area cabled actually has service available at this time. In February Saturn announced it would spend \$30,000,000 to modify their hybrid fibre plus coaxial system to allow it to function as a competitor to Telecom for the local calling market.

Sky Network and cable operator Pac Sat in Greymouth are locked in an unusual marketing battle for customers and the circumstances are most unusual. Greymouth was the first cable affiliate for Sky (CTD 9610, p. 14) and when live Sky sport became available to the firm in mid-April, it experienced an immediate backlog of several hundred new subscription orders. The firm also bid on the right to be an installer for Sky DTH systems along the west coast of South Island, but ultimately decided against pursuing that aspect of the business because they believed the profit margin was too small. The Greymouth system is technically capable of delivering 7 TV programme channels into the home; 3 of these are now Sky. With the addition of Sky channels to the system, Greymouth pays Sky approximately half of its monthly gross subscription receipts (individual homes pay \$49 per month for service). Sky, meanwhile, has a reported backlog of nearly 500 homes on South Island's west coast who wish to take the satellite delivered service (\$650 installation inclusive of Sky Sport for a 12 month period). Few, if any, of those Sky-direct customers are in the cable-available areas of Greymouth - it costs less to have the cable service which is 7, not 1 channel. Seemingly with the entire North and South Island region to catch up on for backlogs, Sky would not be targeting Greymouth for a marketing programme. On May 19, Sky took a full page, 4 colour advertisement in the Greymouth newspaper to promote its satellite service. This was augmented by a radio promotion campaign on a local radio station. Tipped off that Sky was planning this effort, the cable system responded by taking a half page advertisement in the same edition which pointed out to area residents cable is less expensive than Sky satellite, and subscribers receive 7 rather than 1 channel. The cable company also launched on radio 48 hours prior to Sky. In effect, Sky as a wholesaler is competing with its authorised distributor in the marketplace. Cable system GM Damon Rutherford says he has no idea why Sky has elected this competitive stance in his town, describes present relations as "*measurably less friendly than when we signed the contract last November.*"

Gisborne cable TV operator is battling with local Sky office which cable claims is refusing to sell Skywatch programme guide to local cable subscribers. This on top of Gisborne advertising by Sky which began with erroneous claim that Gisborne "missed Rugby last year" (it did not as cable had most of season through its own microwave network). Gisborne community response to full Sky package being available on cable there has been very positive - more than 400 new cable orders in three weeks.

Saturn Communications has added "Channel V" Austral-Asian music service to channel line-up. Parent UIH is equity holder in the Australian rock music channel which is transmitted within the Galaxy digital bouquet on Optus B3. Saturn claims to be "sole agent" in New Zealand for the channel, suggested to-cable-operator price is A\$0.70 per month per cable home. (By comparison, Asian Channel V which is 50% Mandarin in content is US\$0.50 per month while American Country Music Television is US\$0.30 per month.; MCM Music video from Paris, 50% English, is US\$0.10 per subscriber per month.)

UIH (parent of Saturn Communications) has won US\$12.5m suit against Hong Kong's Wharf Cable. Three month trial focused on arrangements alleged by UIH in which Wharf was to assist UIH in securing cable TV franchise for Hong Kong. UIH alleged "breach of promise" and "deceit" in the Wharf promises and a Denver court has agreed.

Terrestrial use of satellite frequencies. CTD February 10 (p. 3) reported licences granted by Ministry of Commerce allowing BCL to utilise various frequencies that are located within the 12.2 to 12.75 GHz spectrum allocated for "direct to home satellite" by international treaty. Ian Hutchings, speaking for the Ministry, responded in CTD March 19 (p. 5) that BCL's DDN network "*is planning to operate their (system) in the 11.7 to 12.2 GHz frequency band.*" Hutchings went on to state, "*BCL must not interfere with any 'plan compliant' satellite system even though these are not yet (in operation).*" CTD in February had suggested BCL was already operating within the DTH frequency ranges and listed a number of frequencies which Ministry records state are in use at BCL. With Sky DTH systems now being installed widely in New Zealand, it appears the potential for interference created by BCL operations is more real than imagined. CTD readers advise they have found strong BCL signals apparently originating at the Kaukau Wellington site on 12.370 and 12.485 GHz, and a second source perhaps originating in downtown Wellington at 12.770 GHz. In the Auckland area a number of reports say there are BCL transmissions apparently originating at the Waatarua site at 12.718 and 12.730 GHz. The Wellington transmissions typically carry news film feeds on their way to Auckland TVNZ control while the Auckland signals carry TV1 and TV2 normal network programming. The Auckland transmissions have their

audio at a subcarrier of 6.5 MHz. These observed operations do not totally correspond to Ministry frequency records indicating BCL may be operating one or more transmitters without the appropriate licence.

If you are looking for the best deal "in town" on Sky Sport Channel satellite service, move to the Chatham Islands. There, according to locals, Sky Sport costs you \$150 for a full year and Sky provides the decoder and Uniden analogue receiver while you provide the dish (typically 2.4m in size). Want a better deal? Provide your own decoder and analogue receiver and pay \$25 (!) for one year of sport service. Pitt Island, with nine homes occupied, will shortly be 100% Sky subscribers. And Pitt could turn out to be the "fastest growing" community in New Zealand shortly - "mainlanders" learning of the "special Sky Chatham rate" are investigating establishing an "address" there in order to qualify for the \$25 annual charge.

Taupo Cablevision survey of 2,000 households presented non-subscribing homes with list of 20 new programming channels it hopes to have available by end of year. Those surveyed were asked to check off the channels they would like to see on cable; National Geographic Channel received 5 times as many checks as any other listed. Number 2 was Outdoor Channel while number 3 was Euro-Pacific Sport channel. Brand recognition remains a powerful force in the marketplace.

MMDS frequencies for New Zealand are back "on the market." Two (007JJG [2348-2356 MHz] and 009JJJ [2364-2372]), originally won by a New Zealand group calling itself Multiband TV, are now in the hands of a Honolulu based cable and wireless operator. Local agent for the 16 MHz package is Lloyd Lamberg (64-9-520-0622), an attorney in Auckland representing the Hawaiian firm. Using analogue technology, a pair of standard (UHF) TV channels could be "broadcast" using these frequencies; newer, still hard to find hardware for digital technology could compress 12+ TV programming channels into the pair of assignments. The history of these two channels is at best chequered: Tom Parkinson and associates bid for a number of the 12 auctioned spectrum spaces in 1990, won these two. Parkinson, operating a TV production house, had plans to launch an MMDS competitor to Sky which was tentatively named "Prime Networks." Unfortunately, two channels were not sufficient to compete with Sky and the pair of MMDS channels have kicked from pillar to post through a number of short term rights holders since that date. The frequencies are available through 2010. (See CTD #9502, p. 2 for detailed discussion of the MMDS world in New Zealand)

First Media, Telecom cable TV arm constructing in Auckland and some Wellington suburbs, has delayed implementation of its Internet high speed connection via cable TV modems "until late this year or early next" according to Jeff Bennett, Director of Programming. First Media is currently focusing its hardware selection attention on General Instrument set top box called TVOnline. The unit allows the consumer to surf the net, receive and transmit e-mail at speeds as high as 30 Mbps utilising digital transmission technology. First Media now admits their cable system rollout is "behind schedule" and suggest they are having problems with "certain councils." Suburbs cabled to date include Mt. Victoria, Karori, Upper Hutt and Whitby (Wellington); Pakuranga and Howick (Auckland). Auckland City Council has approved the First Media underground construction under the provisions of the Resource Management Act. First Media's NVOD (movies at 30 minute intervals) is now operating in Beta Test phase; fees \$5 to \$7 per movie.

US cable TV penetration was more flat than growth oriented in 6 month period ending February 28. Year ago, growth was 2.6% nation-wide in new subscribers while in most recent six months growth was limited to 1.1% after adjustments for consolidation of competing firms. Pay TV units, an indication of marketplace acceptance for optional pay sport and movie services, actually fell 2.1%. In US, cable TV now is available in 62.8% of all households. Largest single MSO (multiple system operator) is Tele-Communications (TCI) with 14,370,000 homes served out of 23,777,000 homes passed by their network of 290,000 miles of cable plant.

UK cable firm Bell Cablemedia somehow managed to lose US\$81.2m on revenues of US\$75.4m in quarter ending March 31. Their good news was the revenue stream was up 289% and within that stream cable telephony accounted for 55.7% of receipts while cable television was 44.3%.

40 GHz band will be divided between satellite downlinks and terrestrial services in North America; licences authorising use of 40 GHz band for terrestrial TV signal delivery have already been granted in New Zealand but no systems are yet operational. Frequency band will be useful in terrestrial applications much like cellular telephone - short paths of under 6km typically, using wide bandwidth to deliver from cell transmissions site to individual homes equipped with dishes in 25 cm size range digital transmissions containing both data and video entertainment services.

Terrestrial Broadcasting

UCB (United Christian Broadcasters) may be planning "auction" of their 32 UHF TV channels, using name brand public accounting firm to manage offering. Original target date for offer documents was May 8th; it did not happen. UCB has been looking for way out of "commitment" to place "family viewing, Christian TV" on the air; they paid \$658,000 for original licences. Accounting firm analysis of "perceived" value of licences was window of \$1.1 to 8 million. UCB raised initial funds to purchase licences through pledges, may be having difficulty explaining to the original funding suppliers why they now wish to sell them (at a profit).

